

Mail Stop AF

Corres. and Mail
BOX AF

Examiner : M. CHARLES

Bruce H. Bernstein Reg. No. 47348
Bruce H. Bernstein
Reg. No. 29,027

P21475.A13



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant : K. AYAKAWA

Group Art Unit: 3682

Appl No. : 09/961,365

Examiner: M. CHARLES

Filed : September 25, 2001

For : THIN AUTOTENSIONER

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

U.S. Patent and Trademark Office
220 20th Street S.
Customer Window, Mail Stop Appeal Brief - Patents
Crystal Plaza Two, Lobby, Room 1B03
Arlington, Virginia 22202

Sir:

This appeal is from the Examiner's final rejection of claims 1-4 and 6 as set forth in the Final Official Action of May 11, 2004.

A Notice of Appeal in response to the Final Official Action of May 11, 2004 was filed on September 8, 2004. The two-month statutory period for response was set to expire on November 8, 2004. Further, the instant Appeal Brief is being submitted together with a check including the requisite fee under 37 C.F.R. § 41.20(b)(2) in the amount of \$340.00 for the filing of the Appeal Brief.

11/09/2004 EABUBAK1 00000019 09961365

01 FC:1402

340.00 0P

However, if for any reason the necessary fee is inadequate or is not associated with this file, the Commissioner is authorized to charge the fee for the Appeal Brief and any necessary extension of time fees to Deposit Account No. 19-0089.

Appellants respectfully request that the decision of the Examiner to reject claims 1-4 and 6 as set forth in the Final Rejection be reversed and that the application be returned to the Examining Group for allowance.

(1) **REAL PARTY IN INTEREST**

The real party in interest is Unitta Corporation, as established by an assignment recorded in the U.S. Patent and Trademark Office on September 25, 2001 at Reel 012201, Frame 0826.

(2) **RELATED APPEALS AND INTERFERENCES**

Appellants are presently not aware of any other appeals and/or interferences which will directly affect or be affected by or have a bearing on the Board's decision in the present Appeal.

(3) **STATUS OF THE CLAIMS**

Claim 1 stands objected to for minor informalities. In this regard, to obviate the informalities, an Amendment under 37 C.F.R. § 1.116 was filed on July 12, 2004, which the Examiner indicated would be entered upon filing of an Appeal.

Claims 5 and 7-20 stand withdrawn from consideration as being directed to a nonelected invention.

Claims 1-4 and 6 are on appeal and stand finally rejected.

Claims 1-4 and 6 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over YASUHITO et al. (JP 05-83516) in view of KOTZAB (U.S. Patent No. 4,813,915).

(4) STATUS OF THE AMENDMENTS

Claim 1 was amended in an Amendment under 37 C.F.R. § 1.116 filed July 12, 2004, which the Examiner indicated would be entered upon filing of an Appeal.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

The summary below is intended as a nonlimiting example of the claimed invention, and no estoppel should be deemed to extend therefrom.

Claim 1 is directed to an autotensioner including a base 30 that has a bottomed tubular shape, a rocking arm 24 that has a tubular part rotatably supported at the inside of the base (Specification, page 13, line 13 through page 14, line 6; Figure 2), a pulley that is attached to one end of the rocking arm 24 and abuts against a belt (Specification, page 11, line 18 through page 3, Figure 2), a torsion coil spring 60 that is housed in the base 30 and biases rotation of the rocking arm 24 in a direction tensioning the belt with respect to the base 30 (Specification, page 17, line 19 through page 18, line 5; Figures 1 and 2), and a friction member that is interposed between an outer circumferential surface of the tubular part and

an inner circumferential surface of the base 30 (Specification, page 12, lines 14-24), the torsion coil spring 60 attached eccentrically to the axial center of the base 30, one end 62 of the torsion coil spring 60 is connected to the base 30 and the other end 64 of the torsion coil spring 60 is connected to the rocking arm 24 (Specification, page 17, line 19 through page 18, line 5; page 34, line 3 through page 35, line 22), and the rocking arm 24 supported to be able to be displaced relative to the base 30, such that a first damping force acting on the rocking arm 24 when the belt is tensioned is relatively larger than a second damping force acting on the rocking arm when the belt is slack (Specification, page 12, line 25 through page 13, line 12; page 18, line 25 through page 23, line 15; page 36, line 21 through page 38, line 15; Figures 4 and 5).

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-4 and 6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over YASUHITO et al. (JP 05-83516) in view of KOTZAB (U.S. Patent No. 4,813,915). The Examiner contends that it would have been obvious to modify the tensioner of YASUHITO et al. to provide a greater biasing force in one direction as taught by KOTZAB. The Examiner further states that “it is apparent that a first damping force acting on the arm when the belt is in tension is relatively larger than a second damping force acting on the arm when the belt is slack due to the eccentricity of the spring to the axial center”.

(7) **ARGUMENT**

In the Final Official Action of May 11, 2004, the Examiner rejected claims 1-4 and 6 under 35 U.S.C. § 103(a) as being unpatentable over YASUHITO et al. in view of KOTZAB.

In the Advisory Action issued August 12, 2004, the Examiner maintained the rejection of claims 1-4 and 6 under 35 U.S.C. § 103(a).

(A) The rejection of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over YASUHITO et al. (JP 05-83516) in view of KOTZAB (U.S. Patent No. 4,813,915) is improper, the decision to reject claim 1 on this ground should be reversed, and the application should be remanded to the Examiner.

Independent claim 1 sets forth an autotensioner including, inter alia, “said torsion coil spring being attached eccentrically to the axial center of said base, one end of said torsion coil spring is connected to said base and the other end of said torsion coil spring is connected to said rocking arm, and said rocking arm being supported to be able to be displaced relative to said base, such that a first damping force acting on said rocking arm when said belt is tensioned is relatively larger than a second damping force acting on said rocking arm when said belt is slack”.

Appellant submits that neither YASUHITO et al. nor KOTZAB teach or suggest an autotensioner having a torsion coil spring which is attached eccentrically to the axial center

of the base, in which *one end of said torsion coil spring is connected to said base and the other end of said torsion coil spring is connected to said rocking arm, so that a first damping force acting on said rocking arm when said belt is tensioned is relatively larger than a second damping force acting on said rocking arm when said belt is slack.*

In Appellant's claimed invention, the first damping force acting on the rocking arm when the belt is tensioned is larger than the second damping force acting on the rocking arm when the belt is not tensioned. In this regard, in the present invention, the amount of the first damping force is amplified by the eccentricity of the coil spring (Specification, page 34, line 3 through page 35, line 22). Figure 11 shows the coil spring 60 before twisting (broken lines) and after twisting (solid lines). As shown in Figure 11, the spiral axial center L3 shifts from its initial position (the hollow circle in Figure 11) to a new position (the solid circle in Figure 11). Thus, the coil spring 60 is housed eccentrically in the base and the rocking arm 24 will be made to tilt. With this configuration of Appellant's claimed invention, the force on the bushing 26 by the rocking arm 24 when the belt is tensioned is increased, thereby setting the first damping force at a high level and enhancing the damping effect (Specification, page 35, lines 2-10). Therefore, during operation of Appellant's claimed invention, when the belt is tensioned, a first, larger damping force is provided by a force tilting the "axial center L4 of rocking arm from the base axial center L1 about the base bottom 32 side" (Specification, page 19, lines 11-14; and Figure 5). However, when the belt

is not tensioned, a second, smaller damping force is provided since the axial center L4 of rocking approximately coincides with the base axial center L1 and the force by which the rocking arm 24 pushes the bushing 26 in the pushing direction Z becomes extremely small (Specification, page 22, lines 19-22; and Figure 4).

Accordingly, Appellant's claimed invention includes an autotensioner including a torsion coil and a rocking arm such that a first damping force acting on the rocking arm when the belt is tensioned is relatively larger than a second damping force acting on the rocking arm when the belt is slack.

However, as pointed out by the Examiner, the YASUHITO et al. device does not include a torsion spring attached eccentrically to the axial center of the base.

Further, the KOTZAB patent is directed to a belt tensioning device. In the KOTZAB device, a damping force (or friction force) is generated between the inner cylindrical section 19 of the arm 7 and the cylindrical friction bushing 27, by an end "P" of the helical spring 33. See particularly Figure 1 of the KOTZAB patent. As clearly shown in Figure 1, the inner cylindrical portion 19 fits on the roller bearing 22. The inner cylindrical portion 19 is sufficiently long in the axial direction so as not to tilt with respect to the roller bearing 22 or a bearing bushing 9. Additionally, there is a gap between an outer cylindrical section 18 of the arm 7 and the housing 10. Therefore, the spring force of the helical spring 33 is large, and the range of rotation of the arm 7 may be within 90 degrees. Accordingly, the urging

P21475.A13

force of the spring 33 on the friction bushing 27 is substantially constant. Therefore, in the KOTZAB device, the damping force is always constant, regardless of the direction of rotation of the arm 7, since the cylindrical section 19 does not tilt and since the spring force is large. Accordingly, the first damping force is equal to the second damping force in the KOTZAB device. Therefore, contrary to the Examiner's assertions, the KOTZAB patent fails to teach or suggest an autotensioner including, inter alia, "said torsion coil spring being attached eccentrically to the axial center of said base, one end of said torsion coil spring is connected to said base and the other end of said torsion coil spring is connected to said rocking arm, and said rocking arm being supported to be able to be displaced relative to said base, such that a first damping force acting on said rocking arm when said belt is tensioned is relatively larger than a second damping force acting on said rocking arm when said belt is slack", as recited in independent claim 1. Therefore, the KOTZAB patent fails to cure the deficiencies of the YASUHITO et al. device, and even assuming, arguendo, that the teachings of YASUHITO et al. and KOTZAB have been properly combined, Appellant's claimed autotensioner would not have resulted from the combined teachings thereof.

Further, there is nothing in the cited prior art that would lead one of ordinary skill in the art to make the modification suggested by the Examiner in the rejection of claim 1 under 35 U.S.C. § 103(a) over YASUHITO et al. in view of KOTZAB. Thus, the only reason to combine the teachings of YASUHITO and KOTZAB results from a review of Appellant's

disclosure and the application of impermissible hindsight. Accordingly, the rejection of claim 1 under 35 U.S.C. § 103(a) over YASUHITO et al. in view of KOTZAB is improper for all the above reasons and withdrawal thereof is respectfully requested.

(B) The rejection of claim 2 under 35 U.S.C. § 103(a) as being unpatentable over YASUHITO et al. (JP 05-83516) in view of KOTZAB (U.S. Patent No. 4,813,915) is improper, the decision to reject claim 2 on this ground should be reversed, and the application should be remanded to the Examiner.

Appellant submits that dependent claim 2, which is at least patentable due to its dependency from claim 1 for the reasons noted above, recites additional features of the invention and is also separately patentable over the prior art of record based on the additionally recited features.

In this regard, Appellant notes that dependent claim 2 sets forth an autotensioner in which the rocking arm is attached movably in the radial direction to said base, which is neither taught nor suggested by YASUHITO et al. or KOTZAB. The Examiner states that in the YASUHITO et al. device, it is apparent that the rocking arm is removably attached to the base by the fastening assembly 35. However, Appellant respectfully submits that neither YASUHITO et al. nor KOTZAB teach or suggest a tensioner including a rocking arm that is *movably attached* to the base. Further, the Examiner has not even contended that the prior art teaches or suggests a *movably attached* rocking arm.

(C) The rejection of claim 3 under 35 U.S.C. § 103(a) as being unpatentable over YASUHITO et al. (JP 05-83516) in view of KOTZAB (U.S. Patent No. 4,813,915) is improper, the decision to reject claim 3 on this ground should be reversed, and the application should be remanded to the Examiner.

Appellant submits that dependent claim 3, which is at least patentable due to its dependency from claim 1 for the reasons noted above, recites additional features of the invention and is also separately patentable over the prior art of record based on the additionally recited features.

In this regard, Appellant notes that dependent claim 3 sets forth an autotensioner in which the friction member is provided across a range of at least 180 degrees around the axial center of the base, a part of the tubular part being biased to be pushed against the friction member by the torsion coil spring, which is neither taught nor suggested by YASUHITO et al. or KOTZAB. The Examiner states that in the YASUHITO et al. device, the friction member 21 is interposed between the outer circumferential surface of the tubular part and inner tubular part base member and the friction member is provided across a range of at least 180 degrees. However, Appellant respectfully submits that neither YASUHITO et al. nor KOTZAB teach or suggest the subject matter claimed in independent claim 1. Therefore, the KOTZAB patent fails to cure the deficiencies of the YASUHITO et al. device, and even assuming, arguendo, that the teachings of YASUHITO et al. and KOTZAB have been

properly combined, Appellant's claimed autotensioner would not have resulted from the combined teachings thereof.

(D) The rejection of claim 4 under 35 U.S.C. § 103(a) as being unpatentable over YASUHITO et al. (JP 05-83516) in view of KOTZAB (U.S. Patent No. 4,813,915) is improper, the decision to reject claim 4 on this ground should be reversed, and the application should be remanded to the Examiner.

Appellant submits that dependent claim 4, which is at least patentable due to its dependency from claim 1 for the reasons noted above, recites additional features of the invention and is also separately patentable over the prior art of record based on the additionally recited features.

In this regard, Appellant notes that dependent claim 4 sets forth an autotensioner in which the friction member is provided with a plurality of projections for dispersing the load acting in a direction in which the torsion coil spring pushes and biases the friction member, which is neither taught nor suggested by YASUHITO et al. or KOTZAB. The Examiner notes the projections 61 on the friction member of YASUHITO et al. However, Appellant respectfully submits that neither YASUHITO et al. nor KOTZAB teach or suggest the subject matter claimed in independent claim 1. Therefore, the KOTZAB patent fails to cure the deficiencies of the YASUHITO et al. device, and even assuming, arguendo, that the

teachings of YASUHITO et al. and KOTZAB have been properly combined, Appellant's claimed autotensioner would not have resulted from the combined teachings thereof.

(E) The rejection of claim 6 under 35 U.S.C. § 103(a) as being unpatentable over YASUHITO et al. (JP 05-83516) in view of KOTZAB (U.S. Patent No. 4,813,915) is improper, the decision to reject claim 6 on this ground should be reversed, and the application should be remanded to the Examiner.

Appellant submits that dependent claim 6, which is at least patentable due to its dependency from claim 1 for the reasons noted above, recites additional features of the invention and is also separately patentable over the prior art of record based on the additionally recited features.

In this regard, Appellant notes that dependent claim 6 sets forth an autotensioner in which the magnitude of the first damping force is 1.5 to 3.5 times the magnitude of the second damping force, which is neither taught nor suggested by YASUHITO et al. or KOTZAB. The Examiner states that it would have been obvious to one of ordinary skill in the art to modify the YASUHITO et al. device so that the magnitude of the first damping force is 1.5 to 3.5 times that of the second damping force. However, Appellant respectfully submits that neither YASUHITO et al. nor KOTZAB teach or suggest the subject matter claimed in independent claim 1, particularly a first damping force greater than the second damping force. Therefore, the KOTZAB patent fails to cure the deficiencies of the

YASUHITO et al. device, and even assuming, arguendo, that the teachings of YASUHITO et al. and KOTZAB have been properly combined, Appellant's claimed autotensioner would not have resulted from the combined teachings thereof.

For at least all of the above reasons, Appellant submits that the rejection of claims 1-4 and 6 under 35 U.S.C. § 103(a) is inappropriate and unsupported by the teachings of YASUHITO et al and KOTZAB. Therefore, Appellant respectfully requests that the decision of the Examiner to finally reject claims 1-4 and 6 under 35 U.S.C. § 103(a) be reversed, and that the application be remanded to the Examiner for withdrawal of the rejection over YASUHITO et al. and KOTZAB and for an early allowance of claims 1-4 and 6 on appeal.

(8) **CONCLUSION**

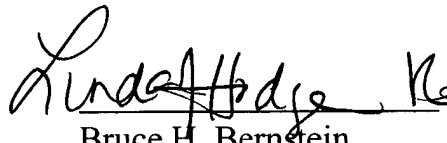
Claims 1-4 and 6 are patentable under 35 U.S.C. § 103(a) over YASUHITO et al. and KOTZAB. Specifically, both YASUHITO et al. and KOTZAB lack any disclosure, teaching, or suggestion of an autotensioner having a torsion coil spring which is attached eccentrically to the axial center of the base, in which *one end of said torsion coil spring is connected to said base and the other end of said torsion coil spring is connected to said rocking arm*, so that *a first damping force acting on said rocking arm when said belt is tensioned is relatively larger than a second damping force acting on said rocking arm when said belt is slack*.

P21475.A13

Accordingly, Appellant respectfully requests that the Board reverse the decision of the Examiner to reject claims 1-4 and 6 under 35 U.S.C. § 103(a), and to remand the application to the Examiner for allowance.

Thus, Appellant respectfully submits that each and every pending claim of the present application meets the requirement for patentability under 35 U.S.C. § 103(a), and that the present application and each pending claim are allowable over the prior art of record.

Respectfully submitted,
K. AYAKAWA


Bruce H. Bernstein
Reg. No. 29,027

Reg No 47348

November 5, 2004
GREENBLUM & BERNSTEIN, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191
(703) 716-1191



APPENDIX A

1. An autotensioner comprising:

a base that has a bottomed tubular shape;

a rocking arm that has a tubular part rotatably supported at the inside of said base;

a pulley that is attached to one end of said rocking arm, and abuts against a belt;

a torsion coil spring that is housed in said base, and biases rotation of said rocking arm in a direction tensioning said belt with respect to said base; and

a friction member that is interposed between an outer circumferential surface of said tubular part and an inner circumferential surface of said base;

said torsion coil spring being attached eccentrically to the axial center of said base, one end of said torsion coil spring is connected to said base and the other end of said torsion coil spring is connected to said rocking arm, and said rocking arm being supported to be able to be displaced relative to said base, such that a first damping force acting on said rocking arm when said belt is tensioned is relatively larger than a second damping force acting on said rocking arm when said belt is slack.

2. The autotensioner according to claim 1, wherein said rocking arm is attached movably in the radial direction to said base.

3. The autotensioner according to claim 1, wherein said friction member is provided across a range of at least 180 degrees around the axial center of said base, a part of said

P21475.A14

tubular part being biased to be pushed against said friction member by said torsion coil spring.

4. The autotensioner according to claim 3, wherein said friction member is provided with a plurality of projections for dispersing the load acting in a direction in which said torsion coil spring pushes and biases said friction member.

6. The autotensioner according to claim 1, wherein the magnitude of the first damping force is 1.5 to 3.5 times the magnitude of the second damping force.